IN THE SPECIFICATION

Please rewrite paragraph [0010] as follows

A means ~~stated in claim 1~~ of one embodiment of the invention ("Embodiment A") is a material activating device including a radioactive layer of a radioactive means that emits radioactive rays for irradiating a material to be activated, and a conductive metal layer disposed on one side of the radioactive layer of the radioactive means so as to be interposed between the radioactive layer of the radioactive means and the material to be activated, wherein the conductive metal layer is a metal film formed on a surface of a layered support structure.

The layered support structure is a thin, layered member, such as a polymer film or a paper sheet ~~as mentioned in claim 2~~, on which a conductive metal film can be formed by vacuum evaporation, sputtering, electroplating or electroless plating or a thin layered member to which a conductive metal foil, such as an aluminum foil, a gold foil, a silver foil or a copper foil ~~as mentioned in claims 6 and 7~~, can be pasted.

A plurality of conductive metal layers can be arranged in a parallel arrangement at intervals approximately equal to the thickness of layered support structures each having one surface coated with a conductive metal film by laminating the layered support structures.

When the layered support structures are made of an electrically insulating material, the plurality of conductive metal layers can be electrically isolated from each other.

Please rewrite paragraph [0011] as follows

The material activating device of Embodiment A ~~stated in claim 1~~, as compared with the foregoing two patented material activating devices, can be formed in a very small thickness and is very flexible. Consequently, the material activating device stated in claim 1 can be applied to a wide variety of uses in a wide field of application.

Although the conductive metal layers have a thickness on the order of micrometers, the conductive metal layers have a sufficient metal mass in view of balance with the amount of energy of the radioactive rays emitted by the radioactive means.

The material and thickness of the polymer film, the thickness of the conductive metal film formed on the surface of the polymer film and the number of the laminated layered support structures are determined properly taking into consideration the properties of the material to be activated.

Please rewrite paragraph [0012] as follows

In the material activating device of Embodiment A ~~stated in claim 1~~, a radioactive layer of the radioactive means may be formed by printing on one of the surfaces of the layered support structure opposite a surface on which the metal film is formed ~~as stated in claim 8~~ or a radioactive layer of the radioactive means may be formed by printing on a surface of the metal film ~~as stated in claim 9~~.

The radioactive layer of the radioactive means may be a solid layer or a patterned layer of a coating material prepared by mixing particles of a radioactive mineral and a printing ink formed by, for example, silk-screen printing.

The pattern of the printed radioactive layer of the radioactive means is changed properly. For example, the density of the radioactive layer of the radioactive means per unit

area can be optionally changed by changing the width of lines forming a grid pattern and the interval between the lines or by changing the diameter of dots forming a polka-dot pattern and interval between the dots.

Please rewrite paragraph [0013] as follows

A means of another embodiment of the invention ("Embodiment B") ~~stated in claim 10~~ for solving the foregoing problem is a material activating device including a radioactive layer of a radioactive means that emits radioactive rays for irradiating a material to be activated, and conductive metal layers disposed on one side of the radioactive layer of the radioactive means so as to be interposed between the radioactive layer of the radioactive means and the material to be activated, wherein the conductive metal layers are superposed in layers, and an insulating layer of an electrically insulating material is interposed between the adjacent conductive metal layers.

The single insulating layer of the electrically insulating material may be interposed between the adjacent ones of the plurality of conductive metal layers or each of a plurality of insulating layer of the electrically insulating material may be interposed between the adjacent conductive metal layers.

Please rewrite paragraph [0014] as follows

The material activating device of Embodiment B ~~stated in claim 10~~ is fundamentally different in construction from the foregoing patented material activating devices in that the conductive metal layers are electrically insulated from each other and therefore, the material activating device has an improved material activating effect.

Although further studies are necessary to explain explicitly reasons that improve the material activating effect, it is inferred that potential difference between the conductive metal layers caused by the electrical insulation of the conductive metal layers from each other improves the material activating effect.

Please rewrite paragraph [0015] as follows

A means ~~stated in claim 11~~ of yet another embodiment ("Embodiment C") for solving the foregoing problem is a material activating device including a radioactive layer of a radioactive means that emits radioactive rays for irradiating a material to be activated, and a conductive metal layer disposed on one side of the radioactive layer of the radioactive means so as to be interposed between the radioactive layer of the radioactive means and the material to be activated, wherein a graphite layer is interposed between the radioactive layer of the radioactive means and the conductive metal layer so as to be in close contact with a surface of the conductive metal layer.

~~According to claim 12,~~ Another ~~another~~ conductive metal layer may be interposed between the radioactive layer of the radioactive means and the graphite layer.

Please rewrite paragraph [0016] as follows

Either of the material activating devices ~~stated in claim 11 and 12~~ of Embodiments B and C ~~is~~ may be provided with the graphite layer attached closely to the surface of the conductive metal layer to reduce work function on the surface of the conductive metal layer. Consequently, the degree of activation of the material is improved.

Work function is the minimum energy needed to remove an electron from the

surface of a conductive metal.

A commercially available graphite sheet may be used for forming the graphite layer or a sheet formed by spreading a mixture prepared by dispersing graphite particles in a polymeric material, such as a coating material or rubber, in a sheet and setting the sheet may be used as the graphite layer.

Please rewrite paragraph [0017] as follows

~~A~~ In yet another embodiment of the invention ("Embodiment D"), a means ~~stated in claim 13~~ for solving the foregoing problem is a material activating device including a radioactive layer of a radioactive means that emits radioactive rays for irradiating a material to be activated, and a conductive metal layer disposed on one side of the radioactive layer of the radioactive means so as to be interposed between the radioactive layer of the radioactive means and the material to be activated, wherein the conductive metal layer is formed by holding conductive metal particles or fibers by a holding means.

~~According to claim 14,~~ The ~~the~~ holding means may be a polymer layer containing the conductive metal particles or fibers dispersed therein.

~~According to claim 15,~~ The ~~the~~ holding means may be a fiber structure containing the conductive metal particles or fibers dispersed therein.

~~According to claim 16,~~ The ~~the~~ holding means ~~is~~ may be a woven fiber structure containing conductive metal fibers.

The fiber structure is not limited to a woven textile fabric, and may be any one of suitable fiber structures including nonwoven fabrics and paper sheets.

Please rewrite paragraph [0018] as follows

The material activating device ~~stated in any one of claims 13 to 16~~ of Embodiment D is formed by replacing the conductive metal plate of either of the foregoing two patented material activating devices with conductive metal particles or conductive metal fibers dispersed in a layer of a polymeric material or a fiber structure or conductive metal fibers woven into a fiber structure.

This material activating device is based on a new knowledge acquired by the inventors of the present invention that the operation and effect of the conductive metal dispersed between the radioactive layer of the radioactive means and the material to be activated are the same as those of the continuous conductive metal layer.

The conductive metal particles or the conductive metal fibers dispersed in the polymeric layer are not limited to those of a single material. A mixture of metal particles or fibers of a plurality of materials may be dispersed in the polymeric layer to provide the same effect as a layered structure formed by superposing metal plates of different materials.

The degree of activation of the material can be changed by changing the materials of the particles or the fibers to be mixed or the material-to-material mixing ratio between particles or fibers of different materials to be mixed or the heavy-to-light metal mixing ratio of particles or fibers of a heavy metal to those of a light metal to be mixed.

When the polymeric material in which the conductive metal particles or fibers are dispersed is a coating material, a conductive metal layer can be easily formed on a surface of a member to be activated by applying the coating material to the surface of the member to be activated.

The fiber structure in which the conductive metal particles or fibers are

dispersed may be, for example, a sports wrist band to be put on the wrist when one plays a sport, an athletic joint supporter, a piece of clothing, a sheet, a blanket, or a paper sheet.

The material activating device ~~stated in any one of claims 13 to 16~~ according to Embodiment D can be formed in any size and in any shape, and hence can be used for activating a material in various fields in which the foregoing two patented material activating devices cannot be used.

Please rewrite paragraph [0019] as follows

A means in still another embodiment ("Embodiment E") ~~stated in claim 17~~ for solving the foregoing problem is a material activating device including a radioactive layer of a radioactive means that emits radioactive rays for irradiating a material to be activated, and a conductive metal layer disposed on one side of the radioactive layer of the radioactive means so as to be interposed between the radioactive layer of the radioactive means and the material to be activated, wherein the conductive metal layer is the wall of a hollow casing of a conductive metal, and the radioactive layer of the radioactive means is disposed inside the casing.

~~According to any one of claims 18 to 20,~~ The ~~the~~ effect of activating a material can be enhanced by forming the casing in a shape suitable for the material to be activated, such as a shape resembling a circular cylinder, a polygonal cylinder, a circular cone or a rectangular pyramid.

When the casing resembling a circular cylinder is used for pressing a vital spot on a human body, the touch of the casing to the human body can be softened if one end of the casing is rounded in a semispherical or a semi-ellipsoidal shape.

The material activating device can be easily attached to a material to be activated when a flat surface is formed in a surface of the tubular casing.

~~According to claim 21,~~ The ~~the~~ material activating device ~~stated in claim 17~~ according to Embodiment E can be easily fabricated by forming the casing in a circular cylinder of a conductive metal, inserting the radioactive means in the casing and flattening the casing having the shape of a circular cylinder so as to form a radioactive layer of the radioactive means and to hold the radioactive layer of the radioactive means.

Please rewrite paragraph [0020] as follows

~~According to claim 22~~, A ~~a~~ base member made of a conductive metal ~~is~~ may be attached to the casing in close contact with the casing, and the material activating device is attached to a material to be activated with the base member joined to the material to be activated.

Thus the conductive metal layer interposed between the radioactive layer of the radioactive material and the material to be activated can be formed in an optimum size and an optimum weight, and the material activating device can be easily attached to an object by forming the base member in a shape conforming to that of the object.

Please rewrite paragraph [0021] as follows

According to claim 23, A ~~a~~ plurality of edges ~~are~~ may be formed in the base member. Thus the degree of activation of the object can be enhanced by enhancing the intensities of the electric and the magnetic field locally around the edges.

~~According to claim 24,~~ The ~~the~~ base member ~~is~~ may be formed by combining a

plurality of polygonal, annular members made of a conductive metal. Thus a plurality of edges are formed in the base member.

~~According to claim 25,~~ The ~~the~~ plurality of polygonal, annular members ~~are~~ may be made of different conductive metals. Thus the degree of activation of the material forming the object can be further enhanced.

Please rewrite paragraph [0022] as follows

A means of still another embodiment of the invention ("Embodiment F") ~~stated in claim 26~~ for solving the foregoing problem is a material activating device including a radioactive layer of a radioactive means that emits radioactive rays for irradiating a material to be activated, and a conductive polymer layer disposed on one side of the radioactive layer of the radioactive means so as to be interposed between the radioactive layer of the radioactive means and the material to be activated.

A conductive polymer forming the conductive polymer layer ~~is~~ may be polyacene or polypyrrole.

Please rewrite paragraph [0023] as follows

The material activating device ~~stated in claim 26~~ according to Embodiment F is formed by replacing the conductive metal layer of either of the foregoing two patented material activating devices with a conductive polymer layer. The conductive polymer is used on the basis of a newly acquired knowledge that materials suitable for forming the layer interposed between the radioactive means and the material to be activated are not limited to metals.

~~According to claim 27,~~ It ~~it~~ is preferable to coat a surface of the conductive polymer layer with a conductive metal film of a conductive metal.

The metal film may be formed by, for example, vacuum evaporation, sputtering, electroplating, electroless plating or the like or may be formed by pasting an aluminum foil, a gold foil, a silver foil, a copper foil or the like to the surface of the conductive polymer layer.

Please rewrite paragraph [0024] as follows

~~According to claim 28,~~ The ~~the~~ material activating device may further include a plurality of conductive polymer layers, the conductive polymer layers are superposed, and an insulating layer made of an electrically insulating material may be interposed between the adjacent conductive polymer layers.

A single or a plurality of insulating layers made of the electrically insulating material may be placed in the plurality of conductive metal layers.

Please rewrite paragraph [0025] as follows

~~According to claim 29,~~ A ~~a~~ graphite layer may be interposed between the conductive polymer layer and the radioactive layer of the radioactive means in close contact with a surface of the conductive polymer layer.

~~According to claim 30,~~ A ~~a~~ conductive polymer layer or a conductive metal film may be interposed between the graphite layer and the radioactive layer of the radioactive means.

Please rewrite paragraph [0026] as follows

The material activating device ~~stated in claim 29 or 30~~ may includes the graphite layer attached in close contact to the surface of the conductive polymer layer or the metal film to reduce the work function on the surface of the conductive polymer layer or the conductive metal layer. Consequently, the degree of activation of the material is improved.

A commercially available graphite sheet may be used for forming the graphite layer or a sheet formed by spreading a mixture prepared by dispersing graphite particles in a polymeric material, such as a coating material or rubber, in a sheet and setting the sheet may be used as the graphite layer.

Please rewrite paragraph [0027] as follows

~~According to claims 31 and 32,~~ The ~~the~~ radioactive layer of the radioactive means may be formed on a surface of the conductive polymer layer or the metal film formed on a surface of the conductive polymer layer by printing.

Please rewrite paragraph [0028] as follows

A means ~~stated in claim 33~~ according to yet another embodiment of the invention ("Embodiment G") for solving the foregoing problem is a material activating device including a radioactive means that emits radioactive rays for irradiating a material to be activated to activate the material, wherein the radioactive means includes radioactive mineral particles and conductive metal particles or fibers.

~~According to claim 34,~~ The ~~the~~ conductive metal particles or fibers may be those of a heavy metal and those of a light metal.

Please rewrite paragraph [0029] as follows

The material activating device ~~stated in claim 33~~ according to Embodiment G is designed on the basis of a new knowledge acquired by the inventors of the present invention that the operation of a radioactive layer of a radioactive means containing particles or fibers of a conductive metal is the same as that of a conductive metal layer.

Thus the object can be efficiently activated even in a state where it is difficult to place the conductive metal layer on the side of the object to be activated.

~~According to claim 34,~~ The ~~the~~ degree of activation can be increased to the highest possible degree by changing the heavy-to-light metal mixing ratio of particles or fibers of the heavy metal to those of the light metal.

Please rewrite paragraph [0030] as follows

A means ~~stated in claim 35~~ according to still another embodiment ("Embodiment H") for solving the foregoing problem is a material activating device including a radioactive layer of a radioactive means that emits radioactive rays for irradiating a material to be activated to activate the material, wherein the radioactive layer of the radioactive means contains radioactive mineral particles and graphite particles or fibers.

Please rewrite paragraph [0031] as follows

The material activating device ~~stated in claim 35~~ according to Embodiment H is based on a new knowledge acquired by the inventors of the present invention that a radioactive layer of a radioactive means containing graphite particles or fibers further increases the degree of activation of a material.

The degree of activation can be increased to the highest possible degree by changing the particle size of the graphite particles or the fiber length of the graphite fibers so as to be suitable for an object to be activated.

Please rewrite paragraph [0032] as follows

In the material activating device ~~stated in claim 36,~~ according to yet another embodiment of the invention ("Embodiment I") the radioactive layer of the radioactive means is a ceramic layer containing particles of a radioactive mineral and particles or fibers of a conductive metal or graphite dispersed therein.

Thus the material can be activated even in an environment in which the foregoing two patented material activating devices cannot be used because the ceramic layer serving as the radioactive layer of the radioactive means is excellent in corrosion resistance and heat resistance.

Please rewrite paragraph [0033] as follows

The material activating device ~~stated in claim 36~~ according to Embodiment I may be attached to a surface of an object by using, for example, a bracket, a metal or resin fastening band or bolts in combination with the material activating device or can be attached or adhesively bonded to a surface of an object with an adhesive tape or an adhesive.

When an adhesive tape is used for attaching the material activating device to, for example, an engine of an automobile, the material activating device can be removed from the engine and can be attached to the engine of another newly procured automobile.

Please rewrite paragraph [0034] as follows

In a material activating device according to a still further embodiment of the invention "Embodiment J") ~~stated in claim 37,~~ the radioactive layer of the radioactive means is a polymer layer holding radioactive mineral particles, and particles or fibers of a conductive metal or graphite.

When a coating material is used for forming the polymer layer, the coating material is applied in a coating film to a surface of an object to be activated, the coating film is dried and solidified to form the radioactive layer of the radioactive means on the surface of the object to be activated.

Thus the radioactive layer of the radioactive means can be easily formed on a surface of a very large area, such as the inside surface of a lower part of the hull of a ship.

Please rewrite paragraph [0035] as follows

In a material activating device according to yet another embodiment of the invention ("Embodiment K") ~~stated in claim 38~~, the radioactive layer of the radioactive means is a fluid layer of a viscous fluid holding radioactive mineral particles, and particles or fibers of a conductive metal or graphite.

In a material activating device according to yet another embodiment ("Embodiment L") ~~stated in claim 39~~, the radioactive layer of the radioactive means is a support member holding the radioactive mineral particles, and the particles or fibers of the conductive metal or graphite.

Please rewrite paragraph [0036] as follows

In the material activating device according to Embodiment K or L ~~stated in claim 38 or 39~~, the radioactive mineral particles held by the viscous fluid or by the support member to form the radioactive layer of the radioactive means. Therefore, the material activating device can be easily attached to an object to be activated.

Please rewrite paragraph [0037] as follows

In a material activating device according to a further embodiment ("Embodiment M") ~~stayed in claim 40,~~ the radioactive layer of the radioactive means is inserted in a hole formed in an object of a material to be activated.

The radioactive layer of the radioactive means inserted in the hole may be sealed in the hole by fitting a plug in the hole.

In a material activating device according to another embodiment ("Embodiment N") ~~stayed in claim 41,~~ the radioactive layer of the radioactive means is attached to a surface of an object of a material to be activated.

In a material activating device according to yet another embodiment ("Embodiment O") ~~stayed in claim 42,~~ the radioactive layer of the radioactive means is printed on a surface of an object of a material to be activated.

Please rewrite paragraph [0038] as follows

The material activating device stated in any of Embodiments M, N or O ~~one of claims 40 to 42~~ can easily attach the particles of the radioactive mineral, and particles or fibers of the conductive metal or graphite to the object to be activated and can efficiently activate the object.

Please rewrite paragraph [0039] as follows

~~According to claim 43,~~ In accordance with another embodiment ("Embodiment P") the object of the material to be activated may be the body of a forming die, such as a press die or an injection molding die.

~~According to claim 44,~~ In accordance with a further embodiment ("Embodiment Q") the object of the material to be activated may be a main part of a machine tool, such as the bed, the head, the table, the spindle or the headstock of, for example, a lathe or a machining center, the screw cylinder of an injection molding machine, the head or the blow mold of a blow molding machine, a lubricating device for lubricating a cutting tool on a machine tool or a mold releasing agent spraying device for spraying a mold releasing agent on a mold.

~~According to claim 45,~~ In accordance with yet another embodiment ("Embodiment R") the object of the material to be activated may be an industrial tool, such as a cutting tool, a cutter or a grinding wheel.

Please rewrite paragraph [0040] as follows

The material activating device of any of Embodiments P, Q, or R ~~stated in any one of claims 43 to 45~~ includes the radioactive layer of the radioactive means containing particles of the radioactive mineral and particles or fibers of the conductive metal or graphite and attached to a forming die, a machine tool or a member made of a conductive metal.

It is proved that the material activating device improves the flow of a lubricant, a cooling liquid or a mold releasing agent and lubricating, cooling or mold releasing effect in addition to the improvement of the surface condition and the damping effect of the object and the improvement of the accuracy of the shape and the surface roughness of a workpiece.

Please rewrite paragraph [0041] as follows

~~According to claim 46,~~ In accordance with another embodiment ("Embodiment S") the electrodes of a lead-acid battery can be activated to recover the ability deteriorated by sulfation by using the material activating device of any of the Embodiments G, H, I, J, K or L ~~stated in any one of claims 33 to 39~~.

~~According to claim 47,~~ The ~~the~~ intensity of the ignition spark can be enhanced by activating a secondary cable connected to a spark plug of an engine by the material activating device stated in any of Embodiments G, H, I, J, K or L ~~one of claims 33 to 39~~.

Please rewrite paragraph [0042] as follows

In the material activating device in yet further embodiment ("Embodiment T" or "Embodiment U") ~~stated in claim 46 or 47~~ the particles of the mineral contained in the radioactive layer of the radioactive means emit weak radioactive rays to supply electrons to an object to be activated

Each of a battery cable connected to the electrodes of a lead-acid battery and a secondary cable connected to a spark plug is formed by coating a conductive cable for carrying a current with an insulating member.

When the material activating device ~~stated~~ in any one of ~~claims 33 to 39~~ Embodiments G, H, I, J, K or L is attached to a battery cable or a secondary cable, there is built a capacitor including the material activating device, the conductive cable and the insulating member interposed between the material activating device and the conductive cable.

It is inferred that electrons accumulated in the capacitor flow into the

electrodes of the lead-acid battery and decompose lead sulfate crystals deposited on the electrodes due to sulfation and thereby the original ability of the lead-acid battery deteriorated by sulfation can be recovered.

It is also inferred that the electrons accumulated in the capacitor flows into the spark plug together with an ignition current according to ignition timing and enhance the intensity of the ignition spark.

Please rewrite paragraph [0043] as follows

A means ~~stated in~~ of a further embodiment ("Embodiment V") ~~claim 48~~ is a material activating device including a radioactive layer of a radioactive means that emits radioactive rays for irradiating a material to be activated, and a conductive metal layer disposed on one side of the radioactive layer of the radioactive means so as to be interposed between the radioactive layer of the radioactive means and the material, wherein the radioactive layer of the radioactive means is formed on a surface of the conductive metal layer by printing.

~~According to claim 49,~~ The ~~the~~ conductive metal layer ~~is~~ may be metal foil of a conductive metal, and the radioactive layer of the radioactive means is formed on the metal foil by printing. Thus the material activating device can be formed in a very small thickness.

~~According to claim 50,~~ An ~~a~~ adhesive tape ~~is~~ may be attached to a surface opposite a surface on which the radioactive layer of the radioactive means is formed. Thus the material activating device of a very small thickness can be easily attached to a surface of an object to be activated.

Please rewrite paragraph [0044] as follows

~~According to claim 51,~~ The ~~the~~ radioactive layer of the radioactive means may be formed in a predetermined pattern on a conductive polymer layer, a conductive metal film or a surface of an object to be activated by, for example, silk-screen printing.

The radioactive layer of the radioactive means may be a solid layer or a patterned layer of straight lines, curved lines, a grid, polka dots, figures, characters or a combination of some of those.

The density of the radioactive means per unit area can be easily changed by changing the width of lines forming a grid pattern and the interval between the lines, the diameter of dots forming a polka-dot pattern and interval between the dots or the size of figures and intervals between the figures.